

WHAT IS CLAIMED IS:

1. A method for preparing an anti-microbial or anti-coagulating polymer resin comprising the step of mixing a polymer resin with at least one kind of pharmaceutically active material without using a solvent.
- 5 2. The method according to claim 1, wherein the pharmaceutically active material is contained in an amount of 0.1 to 30 wt% of the total composition.
3. The method according to claim 1, wherein the pharmaceutically active material is contained in an amount of 0.1 to 20 wt% of the composition.
4. The method according to claim 1, wherein the pharmaceutically active
10 material is an anti-microbial selected from the group consisting of grepafloxacin, sparfloxacin, clinafloxacin, enoxacin, lemeofloxacin, norfloxacin, pipemidic acid, ciprofloxacin, temafloxacin, tosufloxacin, ketoconazole, itraconazole, econazole, isoconazole, fluconazole, miconazole, terbinafin, a salt thereof, and a mixture thereof.
- 15 5. The method according to claim 1, wherein the pharmaceutically active material is an anti-coagulant selected from a group consisting of warfarin, aspirin, ticlopidine, triflusal, clopidogrel, cilostazole, a salt thereof, and a mixture thereof.
6. The method according to claim 1, wherein the polymer resin is selected
20 from a group consisting of polyetherimide (PEI), polyethylene (PE), polypropylene (PP), polycarbonate (PC), polyvinylchloride (PVC), polystyrene (PS), epoxy resin, polytetrafluoroethylene (PTFE), polyacetal (POM), polyamide (PA), polyurethane (PU), ethylene-vinylacetate copolymer (EVA), polymethylmethacrylate (PMMA), polyvinylalcohol (PVA),
25 linear low density poly ethylene (LLDPE), low density polyethylene (LDPE),

high density polyethylene (HDPE), ABS (acrylonitrile-butadiene—styrene), SAN (styrene-acrylonitrile), polyacrylonitrile, polybutadiene, polyacrylic acid, polyacrylimide, polysulfone, polyacetal, polyamide-imide, polytetrafluoroethylene, polyneoprene, polydimethylsiloxane, polymethylmethacrylate, polyetheretherketone, polyphenylenesulfide, polyvinylfluoride, polyvinylacetate, polyvinylidene fluoride, polyether sulfone, polycaprolactone (PCL) and a copolymer thereof; a silicon resin; a natural rubber; a synthetic rubber; and a mixture thereof.

7. The method according to claim 1 further comprising the step of adding one or more kinds of additives selected from a group consisting of a dispersant, an anti-oxidant, and a heat stabilizer.

8. The method according to claim 7, wherein the dispersant is N,N'-ethylene bis stearamide (E.B.S.), polyethylene wax, or a mixture thereof.

9. A medical polymer resin prepared by the method of claim 1, which has a maximum release concentration of pharmaceutically active material of 10 ppm/100 hrs.

10. A method for preparing an anti-microbial or anti-coagulating medical appliance comprising the steps of:

a) mixing a polymer resin with at least one kind of pharmaceutically active material without using a solvent; and

b) molding and processing the mixture without using a solvent.

11. The method according to claim 10, wherein the pharmaceutically active material is an anti-microbial selected from a group consisting of grepafloxacin, sparfloxacin, clinafloxacin, enoxacin, lemeofloxacin, pipemidic acid, ciprofloxacin, temafloxacin, tosufloxacin, ketoconazole, itraconazole,

econazole, isoconazole, fluconazole, miconazole, terbinafin, a salt thereof, and a mixture thereof.

12. The method according to claim 10, wherein the pharmaceutically active material is an anti-coagulant selected from a group consisting of warfarin, aspirin, ticlopidine, triflusal, clopidogrel, cilostazole, a salt thereof, and a mixture thereof.

13. The method according to claim 10, wherein the medical appliance is selected from a group consisting of a silicon catheter, a prosthetic foot, a prosthetic hand, a medical catheter, a surgery glove, artificial skin, an artificial kidney, an artificial articulation, an artificial bone, a blood pack, a tube, a syringe, an artificial tooth, an artificial bone-fixing apparatus, an artificial blood vessel, an artificial fingernail, and an artificial toenail.

14. The method according to claim 10, wherein the method comprises the steps of mixing a silicon resin with a pharmaceutically active material, and molding and processing the mixture at a maximum temperature of 600 °C/sec without using a solvent to prepare a silicon catheter.

15. An anti-microbial or anti-coagulating medical appliance prepared by the method of claim 10.

16. The medical appliance according to claim 15, wherein the medical appliance has a maximum release concentration of pharmaceutically active material of 10 ppm/100 hrs.

17. A method for preparing a master batch or compound comprising the steps of:

mixing a resin selected from a group consisting of linear low density polyethylene (LLDPE), polypropylene (PP), polyethylene (PE), ABS,

polycarbonate (PC), polystyrene (PS), and polyvinylchloride (PVC) resin with at least one kind of pharmaceutically active material without using a solvent; and

molding and processing the mixture at 100 to 300 °C to prepare a master batch (M/B) or compound.

18. The medical appliance according to claim 17, wherein the pharmaceutically active material is an anti-microbial selected from a group consisting of grepafloxacin, sparfloxacin, clinafloxacin, enoxacin, lemeffloxacin, norfloxacin, pipemidic acid, ciprofloxacin, temafloxacin, 10 tosusfloxacin, ketoconazole, itraconazole, econazole, isoconazole, fluconazole, miconazole, terbinafin, a salt thereof, and a mixture thereof.

19. The medical appliance according to claim 17, wherein the pharmaceutically active material is an anti-coagulant selected from a group consisting of warfarin, aspirin, ticlopidine, triflusal, clopidogrel, cilostazole, 15 a salt thereof, and a mixture thereof.

20. A master batch or compound prepared by the method of claim 17.

21. The master batch or compound according to claim 20, wherein the master batch or compound is used in any selected from a group consisting of a water-purifying apparatus, a cutting board, a food packaging film, a 20 food container, a refrigerator, a washing machine, a computer and peripheral device, a drinking water tank, a water tub, bidet nozzle and a urinal cover, desk and chair, an automobile handle, infant goods, a bath tub, and a cosmetic container.

22. A method for preparing paint comprising the step of mixing an anti- 25 microbial selected from a group consisting of grepafloxacin, sparfloxacin,

clinafloxacin, enoxacin, lemeefloxacin, norfloxacin, pipemidic acid, ciprofloxacin, temaefloxacin, tosufloxacin, ketoconazole, itraconazole, econazole, isoconazole, fluconazole, miconazole, terbinafin, a salt thereof, and a mixture thereof, with a polymer resin selected from a group
5 consisting of alkyd resin, acryl resin, urethane resin, epoxy resin, phenol resin, urea resin, melamine resin, modified resin thereof, and a mixture thereof.

23. The method according to claim 22 further comprising the step of adding one or more kinds of additives selected from a group consisting of a
10 pigment, a diluent, and physical property controlling monomer and oligomer, and polyol.